(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
6 January 2005 (06.01.2005)

PCT

(10) International Publication Number
WO 2005/001461 A3

(51) International Patent Classification[7]: G01N 27/414

(21) International Application Number:
PCT/EP2004/006823

(22) International Filing Date: 24 June 2004 (24.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
03253999.1 25 June 2003 (25.06.2003) EP

(71) Applicants *(for all designated States except US)*: **ASML NETHERLANDS B.V.** [NL/NL]; De Run 6501, NL-5504 LA Veldhoven (NL). **WAGENINGEN UNIVERSITY** [NL/NL]; Bomenweg 2, NL-6703 HD Wageningen (NL).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **ZUILHOF, Johannes, Teunis** [NL/NL]; Midden-Eng 54, NL-6721 GZ Bennekom (NL). **SIMON, Klaus** [DE/NL]; Oldengaarde 11, NL-5655 CP Eindhoven (NL). **SUDHOLTER, Ernst, Jan, Robert** [NL/NL]; Prins Willem-Alexanderstraat 20, NL-4158 CM Deil (NL). **SUN, Qiao-Yu** [CN/NL]; Bornesteeg 1-7c-09, NL-6708 GA Wageningen (NL).

(74) Agents: **LEEMING, John, Gerard** et al.; J.A. Kemp & Co., 14 South Square, Gray's Inn, London WC1R 5JJ (GB).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) Date of publication of the international search report:
21 April 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: BIOSENSOR AND METHOD OF PREPARATION

(57) Abstract: A method for patterning a polished silicon surface is disclosed, the method comprising steps leading to an organic monolayer on at least a part of the silicon surface, the monolayer being functionalised in specific desired locations. The method can be used to produce a device comprising one or more FET structures, the gate of the FET being formed by the functionalised organic monolayer. The functionalised monolayer preferably contains oligosaccharides or oligopeptides which are capable of interacting with biological substance, such that the device acts as a bio-sensor.

WO 2005/001461 A3

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
6 January 2005 (06.01.2005)

PCT

(10) International Publication Number
WO 2005/001461 A2

(51) International Patent Classification[7]: G01N 27/414

(21) International Application Number:
PCT/EP2004/006823

(22) International Filing Date: 24 June 2004 (24.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
03253999.1 25 June 2003 (25.06.2003) EP

(71) Applicants *(for all designated States except US)*: **ASML NETHERLANDS B.V.** [NL/NL]; De Run 6501, NL-5504 LA Veldhoven (NL). **WAGENINGEN UNIVERSITY** [NL/NL]; Bomenweg 2, NL-6703 HD Wageningen (NL).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **ZUILHOF, Johannes, Teunis** [NL/NL]; Midden-Eng 54, NL-6721 GZ Bennekom (NL). **SIMON, Klaus** [DE/NL]; Oldengaarde 11, NL-5655 CP Eindhoven (NL). **SUDHOLTER, Ernst, Jan, Robert** [NL/NL]; Prins Willem-Alexanderstraat 20, NL-4158 CM Deil (NL). **SUN, Qiao-Yu** [CN/NL]; Bornesteeg 1-7c-09, NL-6708 GA Wageningen (NL).

(74) Agents: **LEEMING, John, Gerard** et al.; J.A. Kemp & Co., 14 South Square, Gray's Inn, London WC1R 5JJ (GB).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *without international search report and to be republished upon receipt of that report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: DEVICE MANUFACTURING METHOD AND DEVICE

(57) Abstract: A method for patterning a polished silicon surface is disclosed, the method comprising steps leading to an organic monolayer on at least a part of the silicon surface, the monolayer being functionalised in specific desired locations. The method can be used to produce a device comprising one or more FET structures, the gate of the FET being formed by the functionalised organic monolayer. The functionalised monolayer preferably contains oligosaccharides or oligopeptides which are capable of interacting with biological substance, such that the device acts as a bio-sensor.

WO 2005/001461 A2